United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

IN REPLY REFER TO:
PPN 2953

March 4, 2003

Ms. Becky Wren
Environmental Manager
U.S. Army Corps of Engineers, CESPK-PD-R
1325 J Street
Sacramento, California 95814-2922

Dear Ms. Wren:

Thank you for the opportunity to review the Notice of Intent to prepare an Environmental Impact Statement for the North Delta Improvements Project located within the Sacramento-San Joaquin River Delta (Delta). The enclosures are intended to assist you in your continued environmental review of this proposal. Because the proposed action would implement flood control improvements, facilitate water supply reliability and conveyance, and ecosystem restoration measures consistent with the goals of CALFED, future consultation with the U.S. Fish and Wildlife Service (Service) may be required under the Fish and Wildlife Coordination Act and the Endangered Species Act.

Enclosure A provides a list of sensitive species that may occur in or near the project site. The Service recommends that surveys be completed by a qualified biologist on the proposed project site to confirm the presence or absence of special-status species or their habitats. Enclosure B recommends general guidelines for identifying and mitigating project impacts to fish, wildlife, and their habitats. The Council on Environmental Quality developed regulations for implementing the National Environmental Policy Act, and defines mitigation to include: (1) avoiding the impact; (2) minimizing the impact; (3) rectifying the impact; (4) reducing or eliminating the impact over time; and (5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Accordingly, we maintain the best way to mitigate adverse biological impacts is avoidance when at all possible.

We encourage you to use these guidelines to develop a comprehensive environmental document that addresses these needs. If you have any questions regarding these comments, please contact Mark Littlefield (Watershed Planning Branch) in the Sacramento Fish and Wildlife Office, at (916) 414-6581.

Sincerely,

David L. Harlow
Acting Field Supervisor

Enclosures

cc:
AES, Portland, OR
RM, CDFG, Region 2, Rancho Cordova, CA (w/o enclosures)

ENCLOSURE A

Endangered and Threatened Species that May Occur in or be Affected by Projects in the Sacramento/San Joaquin River Delta of California

February 27, 2003

Listed Species

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

California tiger salamander, *Ambystoma californiense* (C/E)

Birds

California clapper rail, *Rallus longirostris obsoletus* (E)

California least tern, *Sterna antillarum (=albifrons) browni* (E)

bald eagle, *Haliaeetus leucocephalus* (T)

Fish

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

Critical habitat, delta smelt, *Hypomesus transpacificus* (T)

Critical habitat, winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

delta smelt, *Hypomesus transpacificus* (T)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Invertebrates

Conservancy fairy shrimp, *Branchinecta conservatio* (E)

Critical habitat, delta green ground beetle, *Elaphrus viridis* (T)

Lange's metalmark butterfly, *Apodemia mormo langei* (E)

delta green ground beetle, *Elaphrus viridis* (T)

longhorn fairy shrimp, *Branchinecta longiantenna* (E)

valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

vernal pool tadpole shrimp, *Lepidurus packardi* (E)

Mammals

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

riparian (San Joaquin Valley) woodrat, *Neotoma fuscipes riparia* (E)

riparian brush rabbit, *Sylvilagus bachmani riparius* (E)

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)

Plants

Antioch Dunes evening-primrose, *Oenothera deltoides ssp. howellii* (E)

Colusa grass, *Neostapfia colusana* (T)

Contra Costa goldfields, *Lasthenia conjugens* (E)

Contra Costa wallflower, *Erysimum capitatum ssp. angustatum* (E)

Critical Habitat, Contra Costa wallflower, *Erysimum capitatum ssp. angustatum* (E)

Critical habitat, Antioch Dunes evening-primrose, *Oenothera deltoides ssp. howellii* (E)

Critical habitat, large-flowered fiddleneck, *Amsinckia grandiflora* (E)

Solano grass (=Crampton's tuctoria), *Tuctoria mucronata* (E)

large-flowered fiddleneck, *Amsinckia grandiflora* (E)

palmate-bracted bird's-beak, *Cordylanthus palmatus* (E)

showy Indian clover, *Trifolium amoenum* (E)

slender Orcutt grass, *Orcuttia tenuis* (T)

soft bird's-beak, *Cordylanthus mollis ssp. mollis* (E)

succulent (=fleshy) owl's-clover, *Castilleja campestris ssp. succulenta* (T)

Reptiles

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

Critical habitat, Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

giant garter snake, *Thamnophis gigas* (T)

Proposed Species

Birds

mountain plover, *Charadrius montanus* (PT)

Invertebrates

Critical habitat, vernal pool invertebrates, *See Federal Register 67:59883* (PX)

Plants

Critical habitat, vernal pool plants, *See Federal Register 67:59883* (PX)

Candidate Species

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

Critical habitat, Central Valley fall/late fall-run chinook, *Oncorhynchus tshawytscha* (C)

green sturgeon, *Acipenser medirostris* (C)

Species of Concern

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Spea hammondii* (SC)

Birds

Aleutian Canada goose, *Branta canadensis leucopareia* (D)

Allen's hummingbird, *Selasphorus sasin* (SC)

American peregrine falcon, *Falco peregrinus anatum* (D)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

California thrasher, *Toxostoma redivivum* (SC)

Costa's hummingbird, *Calypte costae* (SC)

Lawrence's goldfinch, *Carduelis lawrencei* (SC)

Lewis' woodpecker, *Melanerpes lewis* (SC)

Nuttall's woodpecker, *Picoides nuttallii* (SLC)

Suisun song sparrow, *Melospiza melodia maxillaris* (SC)

Swainson's hawk, *Buteo Swainsoni* (CA)

Vaux's swift, *Chaetura vauxi* (SC)

bank swallow, *Riparia riparia* (CA)

black rail, *Laterallus jamaicensis coturniculus* (CA)

black swift, *Cypseloides niger* (SC)

ferruginous hawk, *Buteo regalis* (SC)

greater sandhill crane, *Grus canadensis tabida* (CA)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

loggerhead shrike, *Lanius ludovicianus* (SC)

long-billed curlew, *Numenius americanus* (SC)

marbled godwit, *Limosa fedoa* (SC)

oak titmouse, *Baeolophus inornatus* (SLC)

rufous hummingbird, *Selasphorus rufus* (SC)

tricolored blackbird, *Agelaius tricolor* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

white-faced ibis, *Plegadis chihi* (SC)

white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)

Fish

Kern brook lamprey, *Lampetra hubbsi* (SC)

Pacific lamprey, *Lampetra tridentata* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

river lamprey, *Lampetra ayresi* (SC)

Invertebrates

Antioch Dunes anthicid beetle, *Anthicus antiochensis* (SC)

Antioch andrenid bee, *Perdita scitula antiochensis* (SC)

Antioch cophuran robberfly, *Cophura hurdi* (SC)

Antioch efferian robberfly, *Efferia antiochi* (SC)

Antioch mutillid wasp, *Myrmosula pacifica* (SC)

Antioch sphecid wasp, *Philanthus nasilis* (SC)

California linderiella fairy shrimp, *Linderiella occidentalis* (SC)

Ciervo aegialian scarab beetle, *Aegialia concinna* (SC)

Hurd's metapogon robberfly, *Metapogon hurdi* (SC)

Middlekauf's shieldback katydid, *Idiostatus middlekaufi* (SC)

Midvalley fairy shrimp, *Branchinecta mesovallensis* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

Sacramento anthicid beetle, *Anthicus sacramento* (SC)

San Joaquin dune beetle, *Coelus gracilis* (SC)

curved-foot hygrotus diving beetle, *Hygrotus curvipes* (SC)

molestan blister beetle, *Lytta molesta* (SC)

yellow-banded andrenid bee, *Perdita hirticeps luteocincta* (SC)

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

San Joaquin pocket mouse, *Perognathus inornatus* (SC)

Suisun ornate shrew, *Sorex ornatus sinuosus* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

long-legged myotis bat, *Myotis volans* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

Plants

Boggs Lake hedge-hyssop, *Gratiola heterosepala* (CA)

Brewer's dwarf-flax (=western flax), *Hesperolinon breweri* (SC)

California croton, *Croton californicus* (SLC)

Carquinez goldenbush, *Isocoma arguta* (SC)

Diablo helianthella (=rock-rose), *Helianthella castanea* (SC)

Ferris's milk-vetch, *Astragalus tener var. ferrisiae* (SC)

Gairdner's yampah, *Perideridia gairdneri ssp. gairdneri* (SC)

Hall's bush mallow, *Malacothamnus hallii (=M. fasciculatus)* (SLC)

Heckard's pepper-grass, *Lepidium latipes var. heckardii* (SLC)

Hoover's cryptantha, *Cryptantha hooveri* (SLC)

Lemmon's jewelflower, *Caulanthus coulteri var lemmonii* (SLC)

Livermore tarplant, *Deinandra bacigalupii* (SC)

Mason's lilaeopsis, *Lilaeopsis masonii* (SC)

Mt. Diablo fairy-lantern, *Calochortus pulchellus* (SLC)

San Joaquin spearscale (=saltbush), *Atriplex joaquiniana* (SC)

Suisun Marsh aster, *Aster lentus* (SC)

adobe lily, *Fritillaria pluriflora* (SC)

alkali milk-vetch, *Astragalus tener var. tener* (SC)

bearded allocarya (popcorn-flower), *Plagiobothrys hystriculus* (SC)

big tarplant, *Blepharizonia plumosa ssp. plumosa* (SC)

brittlescale, *Atriplex depressa* (SC)

caper-fruited tropidocarpum, *Tropidocarpum capparideum* (SC)

delta coyote-thistle (=button-celery), *Eryngium racemosum* (CA)

delta tule-pea, *Lathyrus jepsonii var. jepsonii* (SC)

diamond-petaled California poppy, *Eschscholzia rhombipetala* (SC)

fragrant fritillary (= prairie bells), *Fritillaria liliacea* (SC)

heartscale, *Atriplex cordulata* (SC)

hispid bird's-beak, *Cordylanthus mollis ssp. hispidus* (SC)

legenere, *Legenere limosa* (SC)

little mousetail, *Myosurus minimus ssp. apus* (SC)

recurved larkspur, *Delphinium recurvatum* (SC)

showy (=golden) madia, *Madia radiata* (SC)

slough thistle, *Cirsium crassicaule* (SC)

valley sagittaria (=Sanford's arrowhead), *Sagittaria sanfordii* (SC)

water sack (=saline) clover, *Trifolim depauperatum var. hydrophilum* (SC)

Reptiles

California horned lizard, *Phrynosoma coronatum frontale* (SC)

San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

silvery legless lizard, *Anniella pulchra pulchra* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	*Proposed Critical Habitat*	Proposed as an area essential to the conservation of the species.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(SLC)	*Species of Local Concern*	Species of local or regional concern or conservation significance.
(D)	*Delisted*	Delisted. Status to be monitored for 5 years.
(CA)	*State-Listed*	Listed as threatened or endangered by the State of California.
NMFS	NMFS species	Under the jurisdiction of the National Marine Fisheries Service. Contact them directly.
(*)		Possibly extirpated from all or part of this area.
(**)		Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

ENCLOSURE B

The goal of the U.S. Fish and Wildlife Service is to conserve, protect and enhance fish, wildlife, and their habitats by timely and effective provision of fish and wildlife information and recommendations. To assist us in accomplishing this goal, we would like to see the items described below addressed in your environmental documents for the proposed project.

Project Description
The document should very clearly state the purposes of, and document the needs for, the proposed project so that the capabilities of the various alternatives to meet the purposes and needs can be readily determined.

A thorough description of all permanent and temporary facilities to be constructed and work to be done as a part of the project should be included. The document should identify any new access roads, equipment staging areas, and gravel processing facilities which are needed. Figures accurately depicting proposed project features in relation to natural features (such as streams, wetlands, riparian areas, and other habitat types) in the project area should be included.

Affected Environment
The document should show the location of, and describe, all vegetative cover types in the areas potentially affected by all project alternatives and associated activities. Tables with acreage of each cover type with and without the project for each alternative would also be appropriate. We recommend that all wetlands in the project area be delineated and described according to the classification system found in the Service's Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979). The Service's National Wetland Inventory maps would be one starting point for this effort, but updated information may be needed.

The document should present and analyze a full range of alternatives to the proposed project. In an effort to fully comply with the Clean Water Act and meet the Federal government's goal of no net loss of wetlands, at least one alternative should be designed to avoid all impacts to wetlands, including riparian areas. Similarly, within each alternative, measures to minimize or avoid impacts to all habitats (wetlands, riparian areas, grasslands, oak woodlands, etc.) should be included.

Lists of fish and wildlife species expected to occur in the project area should be in the document. The lists should also indicate for each species whether it is a resident or migrant, and the time of year it would be expected in the project area.

Environmental Consequences
The sections on impacts to fish and wildlife should discuss impacts from vegetation removal (both permanent and temporary), filling or degradation of wetlands, interruption of wildlife migration corridors, and disturbance from trucks and other machinery during construction and/or operation. These sections should also analyze possible impacts to streams from construction of outfall structures,

pipeline crossings, and filling. Impacts on water quality, including nutrient loading, sedimentation, toxins, biological oxygen demand, and temperature in receiving waters should also be discussed in detail along with the resultant effects on fish and aquatic invertebrates. Discussion of indirect impacts to fish, wildlife, and their habitats, including impacts from growth induced by the proposed project, should also be addressed in the document. The impacts of each alternative should be discussed in sufficient detail to allow comparison between the alternatives.

The cumulative impacts of the project, when viewed in conjunction with other past, existing, and foreseeable projects, needs to be addressed. Cumulative impacts to fish, wildlife and habitats, including water quality, should be included.

Mitigation Planning.
Under provisions of the Fish and Wildlife Coordination Act, the Service advises and provides recommendations to Federal agencies planning water development activities or permitting such activities. These Federal agencies are to consult with the Service and give equal consideration to the conservation and rehabilitation of fish and wildlife resources with other project purposes. When reviewing proposed activities, the Service generally does not object to projects meeting the following criteria:

1. They are ecologically sound;

2. The least environmentally damaging reasonable alternative is selected;

3. Every reasonable effort is made to avoid or minimize damage or loss of fish and wildlife resources and uses;

4. All important recommended means and measures have been adopted, with guaranteed implementation to satisfactorily compensate for unavoidable damage or loss consistent with the appropriate mitigation goal; and

5. For wetlands and shallow water habitats, the proposed activity is clearly water dependent and there is a demonstrated public need.

The Service may recommend the "no project" alternative for those projects which do not meet all of the above criteria, and where there is likely to be a loss of fish and wildlife resources.

When projects impacting fish and wildlife resources are deemed acceptable to the Service, we recommend full mitigation for any impacts to fish and wildlife habitat. The Council on Environmental Quality regulations for implementing the National Environmental Policy Act define mitigation to include: 1) avoiding the impact; 2) minimizing the impact; 3) rectifying the impact; 4) reducing or eliminating the impact over time; and 5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Accordingly, we maintain that the best way to mitigate for adverse

biological impacts is to avoid them altogether.

Project documentation should include a mitigation plan that describes all measures proposed to avoid, minimize, or compensate for impacts to fish and wildlife and their habitats. The measures should be presented in as much detail as possible to allow evaluation of their probable effectiveness.

To determine mitigation credits available for unavoidable impacts, future conditions on the mitigation site, absent any mitigation, are estimated and then compared to conditions expected to develop as a result of implementing the mitigation plan.

Mitigation habitat should be equal to or exceed the quality of the habitat to be affected by the project. Baseline information would need to be gathered at the impact site to be able to quantify this goal, such as plant species diversity, shrub and tree canopy cover, number of stems per acre, tree height, etc. Judging the ultimate success of the project should include success of mitigation, which should use these same measurements at the mitigation site as standards of comparison. Mitigation success criteria should aim toward equaling or exceeding the quality of the highest quality habitat to be affected. In other words, the mitigation effort would be deemed a success in relation to this goal if the mitigation site met or exceeded target habitat measurements (plant cover, density, species diversity, etc.).

Criteria should be developed for assessing the progress of mitigative measures during their developmental stages as well. Assessment criteria should include rates of plant growth, plant health, and evidence of natural reproduction.

The plan should present the proposed ground elevations at the mitigation site, along with elevations in the adjacent areas. A comparison of the soils of the proposed mitigation and adjacent areas should also be included in the plan, and a determination made as to the suitability of the soils to support habitats consistent with the mitigation goals.

Because of their very high value to migratory birds, and ever-increasing scarcity in California, our mitigation goal for wetlands (including riparian and riverine wetlands) is no net loss of in-kind habitat value or acreage, whichever is greater. As a result of their high value and reliance on suitable hydrological conditions, wetlands require development of additional information on the predicted hydrology of the mitigation site. The plan should describe the depth of the water table, and the frequency, duration, areal extent, and depth of flooding which would occur on the site. The hydrologic information should include an analysis of extreme conditions (drought, flooding) as well as typical conditions.

A mitigation plan must include a timeframe for implementing the mitigation in relation to the proposed project. We recommend that mitigation be initiated prior to the onset of construction. If there will be a substantial time lag between project construction and completion of the mitigation, a net loss of habitat values would result, and more mitigation would be required to offset this loss.

Generally, monitoring of the mitigation site should occur annually for at least the first five years,

biennially for years 6 through 11, and every five years thereafter until the mitigation has met all success criteria. Remedial efforts and additional monitoring should occur if success criteria are not met during the first five years. Some projects will require monitoring throughout the life of the project. Reports should be prepared after each monitoring session.

The plan should require the preparation of "as-built" plans. Such plans provide valuable information, especially if the mitigation effort fails. Similarly, a "time-zero" report should be mandated. This report would describe exactly what was done during the construction of the mitigation project, what problems were encountered, and what corrections or modifications to the plans were undertaken.

The plan should detail how the site is to be maintained during the mitigation establishment period, and how long the establishment period will be. It will also be important to note what entity will perform the maintenance activities, and what entity will ultimately own and manage the site. In addition, a mechanism to fund the maintenance and management of the site should be established and identified. A permanent easement should be placed on the property used for the mitigation that would preclude incompatible activities on the site in perpetuity.

Finally, in some cases, a performance bond may be required as part of the mitigation plan. The amount of the bond should be sufficient to cover the costs of designing and implementing an adequate mitigation plan (and purchasing land if needed) should the proposed plan not succeed.

Reference:

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service, Washington, D.C. 103 pp.